

MOLLUSCA IN SEA GRASS IN VAN PHONG BAY AND CAM RANH BAY, KHANH HOA PROVINCE

Bui Quang Nghi

Institute of Oceanography, Nhatrang, Vietnam

ABSTRACT

The sea grass community is rich in Mollusca. A total of 34 species in 18 families and 26 genera were collected from Van Phong Bay and Cam Ranh Bay. Average density in Van Phong Bay was 60 ind./m² and 48 ind./m² in Cam Ranh Bay. Many species in the sea grass beds have economic value: *Turbo bruneus*, *Strombus spp.*, *Lambis lambis*, *Anadara antiquata*, *Pinna spp.*, *Atrina vexillum*, *Trachycardium spp.*, *Macra maculata* and some species of the family Veneridae.

INTRODUCTION

Mollusca have been studied in the sea of Khanh Hoa province by Serene (1937), Dawydoff (1952), Marchad (1955a,b), Tran Ngoc Loi (1967), Nguyen Van Chung (1994), Nguyen Chinh (1980), Gulbin & Tran Dinh Nam (1983), Dao Tan Ho (1991, 1996), and Nguyen Trong Nho (1994). But none of these studies deal with molluscs in sea grass, which is widely distributed in Khanh Hoa province, especially in Van Phong Bay (Ninh Hoa-Van Ninh districts) and Cam Ranh Bay (Cam Ranh district). Sea grass is an important habitat for zoobenthos in general, including many species of molluscs. Here I report on species composition and quantitative data obtained in the two localities Van Phong Bay and Cam Ranh Bay. Most of the species have economic value.

MATERIAL AND METHODS:

Van Phong Bay and Cam Ranh Bay (the coastal waters of Khanh Hoa province) were

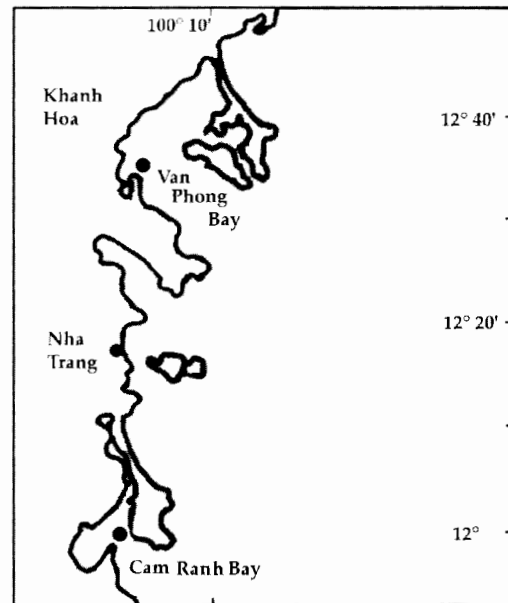


Figure 1. Map of two sampling stations: Van Phong Bay and Cam Ranh Bay.

sampled in September and November 1996 (Fig. 1).

Four quantitative samples were collected two times at each site using a 0.25 m² frame to mark sampling spots chosen at random. The bottom was searched during diving and samples collected at the same time as the quantitative sampling was made in order to supplement data on presence/absence of taxa.

All of collected specimens were preserved in 70% alcohol and taken back to the laboratory for species identification using the following literature: Kira (1962), Habe &

Table 1. Species composition of mollusca in sea grass in Van Phong Bay and Cam Ranh Bay. Presence = +; absence = -. Species having high economic value are marked with an asterisk.

| Taxa | Cam Ranh | Van Phong |
|---------------------------------|-------------|--------------|
| GASTROPODA | | |
| TURBINIDAE | | |
| <i>Turbo bruneus</i> | - | + |
| NERITIDAE | | |
| <i>Nerita albicilla</i> | - | + |
| CERITHIIDAE | | |
| <i>Clypeomorus moniliferus</i> | - | + |
| <i>Cerithium gentile</i> | + | - |
| STROMBIDAE | | |
| <i>Strombus urceus</i> * | + | + |
| <i>Strombus canarium</i> * | + | - |
| <i>Lambis lambis</i> * | - | + |
| CYPRAEIDAE | | |
| <i>Cypraea errones</i> | - | + |
| MURICIDAE | | |
| <i>Cronia margariticola</i> | + | + |
| NASSARIIDAE | | |
| <i>Nassarius</i> sp. | + | - |
| BIVALVIA | | |
| ARCIDAE | | |
| <i>Anadara antiquata</i> * | + | + |
| <i>Barbatia velata</i> | + | - |
| <i>Scapharca vellicata</i> * | + | - |
| MYTILIDAE | | |
| <i>Modiolus philippinarum</i> | + | + |
| <i>Septifer bilocularis</i> | + | - |
| PINNIDAE | | |
| <i>Atrina vexillum</i> * | - | + |
| <i>Pinna attenuata</i> * | - | + |
| <i>Pinna bicolor</i> * | + | - |
| PTERIIDAE | | |
| <i>Pinctada margaritifera</i> * | - | + |
| <i>Pinctada</i> sp. | + | + |

ISOGNOMONIDAE

Isognomon isognomum + -

MALLEIDAE

Malleus regula - +

ANOMIIDAE

Placuna sella + -

CARDIIDAE

*Trachycardium angulatum** - +

Trachycardium sp.* - +

*Trachycardium elongatum** + -

MACTRIDAE

*Mactra maculata** - +

VENERIDAE

*Gafrarium pectinatum** - +

*Gafrarium disper** - +

*Gafrarium divaricatum** + -

*Circe scripta** + -

*Tapes literatus** + -

Dosinia sp. - +

CORBULIDAE

Corbula erythrodon + -

Kosuge (1966), Cernohorsky (1972), Kay (1979), Hirase (1984), Springsten & Leobrera (1986), Abbott & Dance (1986), Abbott (1991).

RESULTS*Qualitative data*

A total of 34 species of 18 families and 26 genera were found in the two study areas Van Phong Bay and Cam Ranh Bay. Bivalves dominated with 24 species while 10 species of gastropoda were encountered. Only 5 species were found in both Van Phong and Cam Ranh Bay: *Cronia margariticola*, *Anadara antiquata*, *Strombus urceus*, *Modiolus philippinarum* and *Pinctada* sp.

A total of 20 species were collected in Van Phong Bay, and 19 species were collected in Cam Ranh Bay. Family *Veneridae* was the most abundant (6 species).

Many species of Mollusca from sea grass

Table 2.
Average density of species (ind. m⁻²) in quantitative samples. Seagrass beds at Cam Ranh (CR) and Van Phong (VP).

| | CR | VP |
|--------------------------------|------|------|
| <i>Nerita albicilla</i> | - | 1.3 |
| <i>Clypeomorus moniliferus</i> | - | 5.3 |
| <i>Cerithium gentile</i> | 12.0 | - |
| <i>Strombus urceus</i> | 2.4 | - |
| <i>Cypraea errones</i> | - | 1.3 |
| <i>Cronia margariticola</i> | 4.0 | 1.3 |
| <i>Nassarius sp.</i> | 3.2 | - |
| <i>Anadara antiquata</i> | 4.0 | - |
| <i>Modiolus philippinarum</i> | 4.0 | 26.7 |
| <i>Pinctada margaritifera</i> | - | 1.3 |
| <i>Malleus regula</i> | - | 5.3 |
| <i>Trachycardium elongatum</i> | 1.6 | - |
| <i>Trachycardium angulatum</i> | - | 1.3 |
| <i>Trachycardium sp.</i> | - | 2.7 |
| <i>Macra maculata</i> | - | 8 |
| <i>Circe scripta</i> | 7.2 | - |
| <i>Gafrarium pectinatum</i> | - | 1.3 |
| <i>Gafrarium disper</i> | - | 1.3 |
| <i>Gafrarium divaricatum</i> | 1.6 | - |
| <i>Tapes literata</i> | 1.6 | - |
| <i>Dosinia sp.</i> | - | 2.7 |
| <i>Corbula erythrodon</i> | 6.4 | - |

beds have commercial value: *Turbo bruneus*, *Strombus spp.*, *Lambis lambis*, *Anadara antiquata*, *Pinna spp.*, *Atrina vexillum*, *Trachycardium spp.*, *Macra maculata* and some species of the family *Veneridae*.

Quantitative data

A total of 16 quantitative samples from Van Phong Bay and Cam Ranh Bay harboured 22 species of 14 families and 18 genera. Only 2 species were found in both Cam Ranh Bay and Van Phong Bay: *Cronia margariticola* and *Modiolus philippinarum*. The average

total density was 60 ind./m² in Van Phong Bay, and 48 ind./m² in Cam Ranh Bay.

Two species had high density: *Modiolus philippinarum* (26.7 ind./m², Van Phong Bay), *Cerithium gentile* (12 ind./m², Cam Ranh Bay). Some of the economic species were quite abundant such as: *Macra maculata* (8 ind./m²), *Circe scripta* (7.2 ind./m²), and *Anadara antiquata* (4 ind./m²).

DISCUSSION

Although the sea grass habitats looked identical to the naked eye in Van Phong Bay and Cam Ranh Bay, the species compositions were markedly different with only 5 species occurring in both bays. It is speculated that this difference might due to different environmental conditions. However, human impact may also contribute. Local people collect many molluscs for daily food thereby clearly reducing the density of many species. We certainly need to investigate molluscs in sea grass beds in greater detail to be able to estimate their economic potential and to indicate ways to protect this resource from overexploitation.

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